Amendments to the Specification:

Please replace the paragraph beginning at page 2, line 4 and extending to line 13, with the following rewritten paragraph:

Thus, the ability of prior art gas separation devices to execute repeated adsorption and desorption cycles depends in large part on the thermal conductivity of the adsorbent. When the thermal conductivity of the adsorbent is limited, sufficient time must be allowed both prior to and during the adsorption cycle to permit the heats of adsorption and desorption to be dissipated from the adsorbent. This in turn usually requires the use of a large amount of adsorbent in order to separate an acceptable amount of target gas during each adsorption cycle. Moreover, although the cycle times can be decreased somewhat by the use of ancillary heat removal devices, such as cooling tubes and fins, these devices ~~increases~~ increase the expense and complexity of the apparatus.

Please replace the paragraph beginning at page 2, line 15 and extending page 3, line 2, with the following rewritten paragraph:

In accordance with the present invention, these ~~an~~ and other limitations in the prior art are overcome by providing an apparatus for separating a first gas from a mixture of the first gas and at least one second gas. The apparatus includes a housing which comprises an inlet port and an outlet port, an adsorbent which is positioned in the housing and which comprises a carbon based foam

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monolith that has an affinity for the first gas, and a device for desorbing the first gas from the adsorbent. During a first phase of operation of the apparatus, the first gas is adsorbed onto the adsorbent to separate the first gas from the second gas. During a second phase of operation of the apparatus, the first gas is desorbed from the adsorbent and expelled through the outlet port.

Please replace the paragraph beginning at page 4, line 21 and extending to page 5, line 12, with the following rewritten paragraph:

The gas filtration and storage apparatus of the present invention is designed to separate a target gas from a mixture of at least two gases and then preferably store the target gas or the remaining gases for future use. The apparatus employs a chemical adsorbent to attract and bind the target gas and thereby separate the target gas from the remaining gases in the mixture. The target gas may be stored on the adsorbent or subsequently desorbed from the adsorbent and stored in a suitable container. In order to facilitate the removal of the heats of adsorption and desorption from the adsorbent, the adsorbent is preferably constructed of an activated carbon or graphite foam monolith having a relatively high thermal conductivity. Therefore, as the mixture of ~~gasses~~ gases is flowed over and through the adsorbent, the heats of adsorption and desorption will be readily conducted through the adsorbent and dissipated by the flow of the remaining gases in the mixture. As a result, a relatively small amount of adsorbent can be cycled frequently to

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remove a comparatively large amount of target gas from the mixture of gases.

Please replace the paragraph beginning at page 11, line 3 and extending to line 13 with the following rewritten paragraph:

Each of the valves ~~38-46~~ 38, 40, 42, 44 and 46 may be any conventional valve which is suitable for its intended purpose. For example, each of the valves 38-46 may be an appropriate manually, hydraulically or electrically actuatable valve. In addition, the valve 38 may be a check valve which is oriented so as to prevent the flow of gas from the separator 12 back into the inflow conduit 18. Also, the valves 40 and 42 may be replaced by a single three-way valve which may be operated to selectively connect the outflow conduit 20 with the second branch conduit 22 or the third branch conduit 24. Furthermore, in the event the apparatus 10 does not include the second storage tank B and the second and fourth branch conduits 24 and 28, the valve 40 may be replaced by a check valve which is oriented to prevent the flow of gas back ~~in to~~ into the separator 12.

Please replace the paragraph beginning at page 11, line 14 and extending to page 12, line 7 with the following rewritten paragraph:

Referring now to Figure 4, another embodiment of a separator is shown which is particularly useful when

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electrical energy is employed to desorb the target gas from the adsorbent 30. The separator of this embodiment, which is indicated generally by reference number 48, comprises a support structure or housing 50, ~~a~~ an adsorbent 30 which is positioned within the housing, an inlet port 14 and an outlet port 16. The housing 50 includes a top plate 52 which is attached to a bottom plate 54 by suitable means, such as a number of bolts 56. In this example, the top plate 52 comprises a first electrical conductor and the bottom plate 54 comprises a second electrical conductor. Accordingly, the top and bottom plates 52, 54 are made of a suitable electrically conductive material, such as an aluminum alloy. In addition, the top and bottom plates 52~~,~~ ,54 are electrically insulated from each other, such as by a suitable gasket 58 or a nonconductive coating which is formed on the adjoining surfaces of the top and bottom plates. Furthermore, in the event the top ~~an~~ and bottom plates 52, 54 are secured together by bolts 56, an insulating grommet 60 is ideally positioned between each bolt and the top plate to electrically isolate the bolt, and thus the bottom plate, from the top plate.

Please replace the paragraph beginning at page 12, line 16 and extending to line 21, with the following rewritten paragraph:

In operation of the separator 48, a preferably DC current from a power supply ~~62~~ 61 is conducted through the top and bottom plates 52, 54 and across the adsorbent 30. The electrical current liberates the molecules of the target gas from the adsorbent 30, and the resulting high

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energy target gas expands through the outlet port 16 and into the outflow conduit 20. During this reaction, the valve 38 prevents the target gas from expanding back into the inflow conduit 18.

Please replace the paragraph beginning at page 12, line 22, and extending to page 13, line 10, with the following rewritten paragraph:

The exact mechanism by which the electrical current effects the desorption of the target gas from the adsorbent 30 is not known. However, the inventors believe that, when the current is conducted through the adsorbent 30, electrons are channeled into the bond between each target gas molecule and its associated adsorbent molecule until the bond is broken and the target gas molecule is liberated from the adsorbent molecule. With respect to the carbon based adsorbents in particular, one theory is that the electrons from the power supply ~~62~~ 61 displace the electrons of the target gas molecule in the conduction band of the adsorbent molecule, thereby freeing the target gas molecule from the adsorbent molecule. Another theory is that the electrons impart sufficient energy to the target gas molecule to allow it to escape the electrical potential binding it to its associated adsorbent molecule.

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